

Freedom Chemical Spill

- 1/9 – spill of 4-methylcyclohexane methanol (MCHM) reported to Elk River
- MCHM detected at intake to WV American Water Company Kanawha Valley Plant
 - Did not shut down intake, concern for pressure loss
 - Minimal storage
 - No alternate/emergency source
- Do Not Use Order issued by West Virginia Bureau for Public Health (WVBPH), Governor Tomblin declares State of Emergency
 - 100,000 customers
 - 300,000 service population
 - 9 counties
- Chemists consult to understand MCHM chemistry, analytical approach
- WVBPH consults CDC/ATSDR on MCHM toxicity

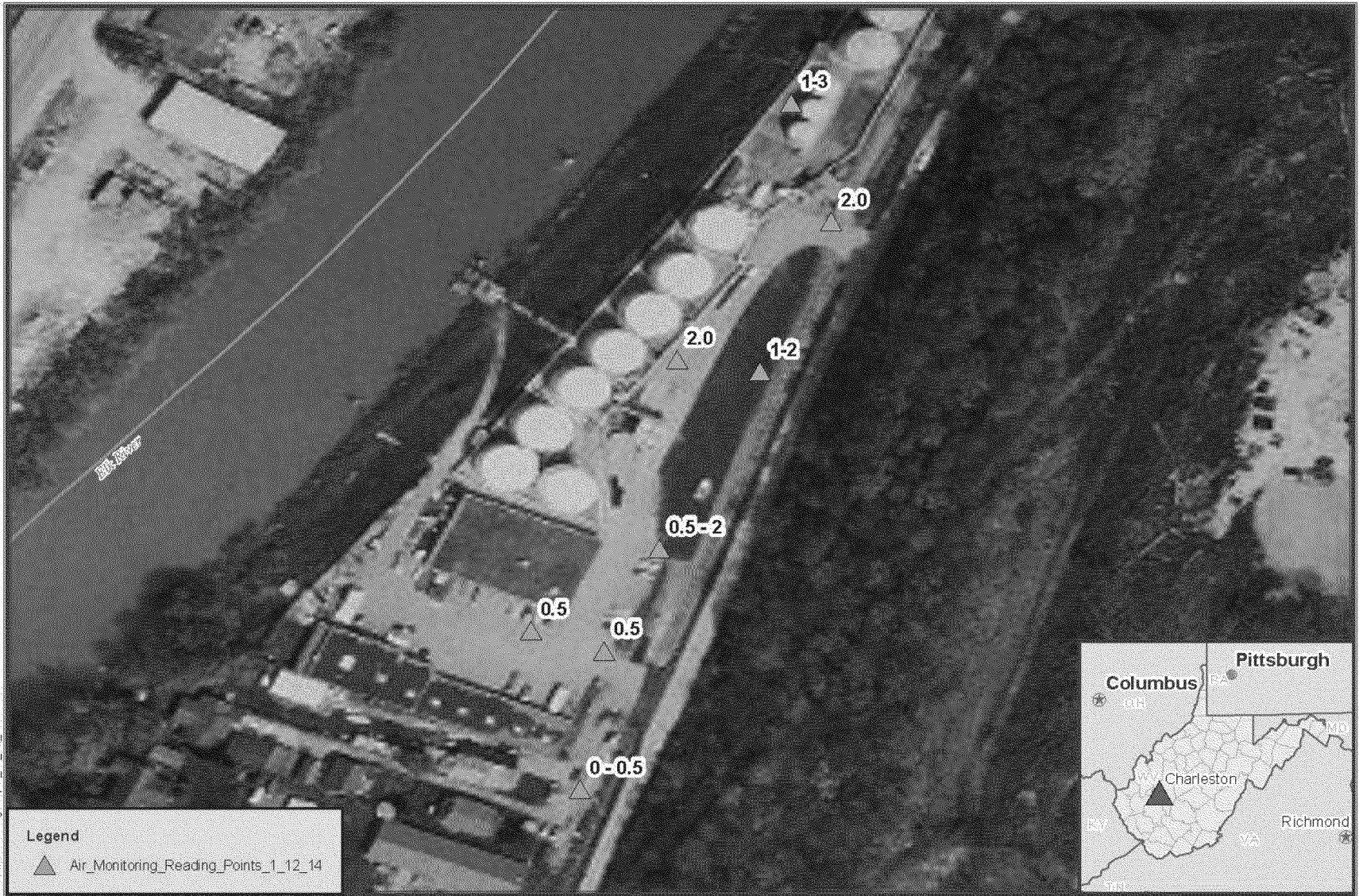
Freedom Chemical Spill

- 1/10/14 – RICT convened; EPA R3 deploys two On Scene Coordinators, staffs FEMA EOC desk (Phila), consults with WVDEP and WVBPH
- 1/12/14 – CDC/ATSDR recommends protective level of 1 ppm MCHM, EPA supports
- 1/12/14 - Flushing of system begins (mains and buildings):
 - 175 pressure zones
 - 1700 miles of mains
 - 3000 square miles
- 1/14 – 1/18/14 – flushing continues, DNU lifted in successive areas of distribution system
- 1/15/14 – CDC/ATSDR advises pregnant women to avoid water out of an abundance of caution
- 1/18/14 - achieved < 1 ppm MCHM throughout system
- 1/21/14 – Freedom Industries reports tank material contained 7.3% propylene glycol phenyl ether (PPH) and di-propylene glycol phenyl ether (di-PPH)

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- 2/5/14 – R3 Administrator and CDC Director visit Charleston, participate in press conference
- 2/11/14 – Gov. Tomblin announces home testing project:
 - Residential water assessment
 - Independently evaluate safety factor for MCHM
 - Development of odor threshold for MCHM
- 2/11/14 – Coal slurry release to Elk River tributary from Patriot Coal processing plant (no impact to drinking water)
- 2/20/14 – <10 ppb throughout system; continue flushing to address odor
- 2/28/14 – State of Emergency ends
- 3/3/14 – all results <2 ppb throughout system

File: Air Monitoring Map 1_11_14_1315.mxd



Legend

▲ Air_Monitoring_Reading_Points_1_12_14



TechLaw

START Contract No. EP-S3-10-04

**Air Monitoring Location/Data Map - 1/12/14 - 14:20 hours
Charleston, WV Chemical Leak - Etowah, West Virginia**

0 95 190 380 Feet

Map By:
WFH

Date Modified:
01/12/2014

Scale: 1:1,682



Source:

Base Layers procured from ESRI Online Services:
Air Monitoring Results from field screening using
START TVA-1000 FID unit.
Results are approximate due to response factor
relationship, wind, and other potential interferences.







Storm drain below the second containment of tank farm

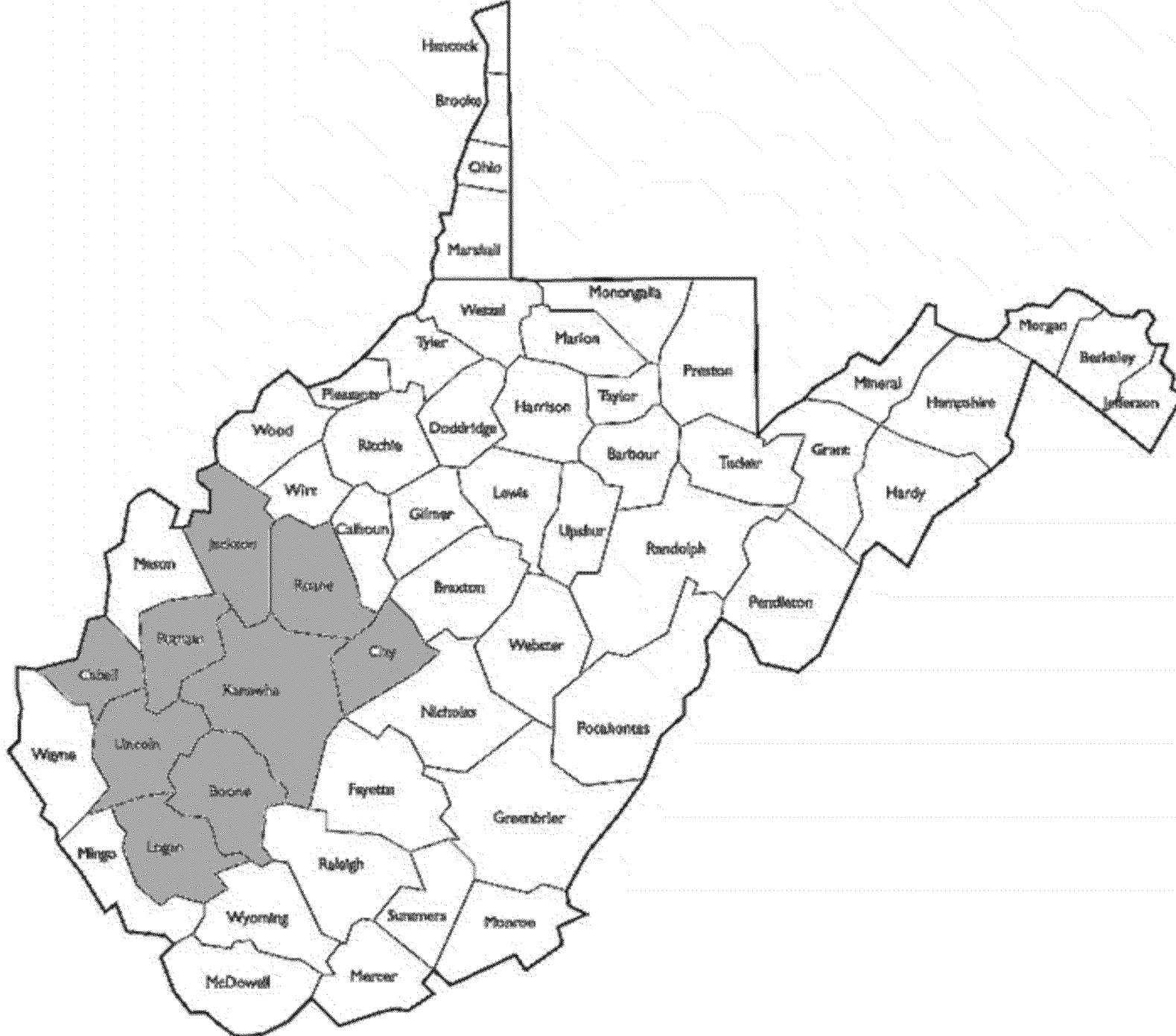


Example of Fill below Tank Farm

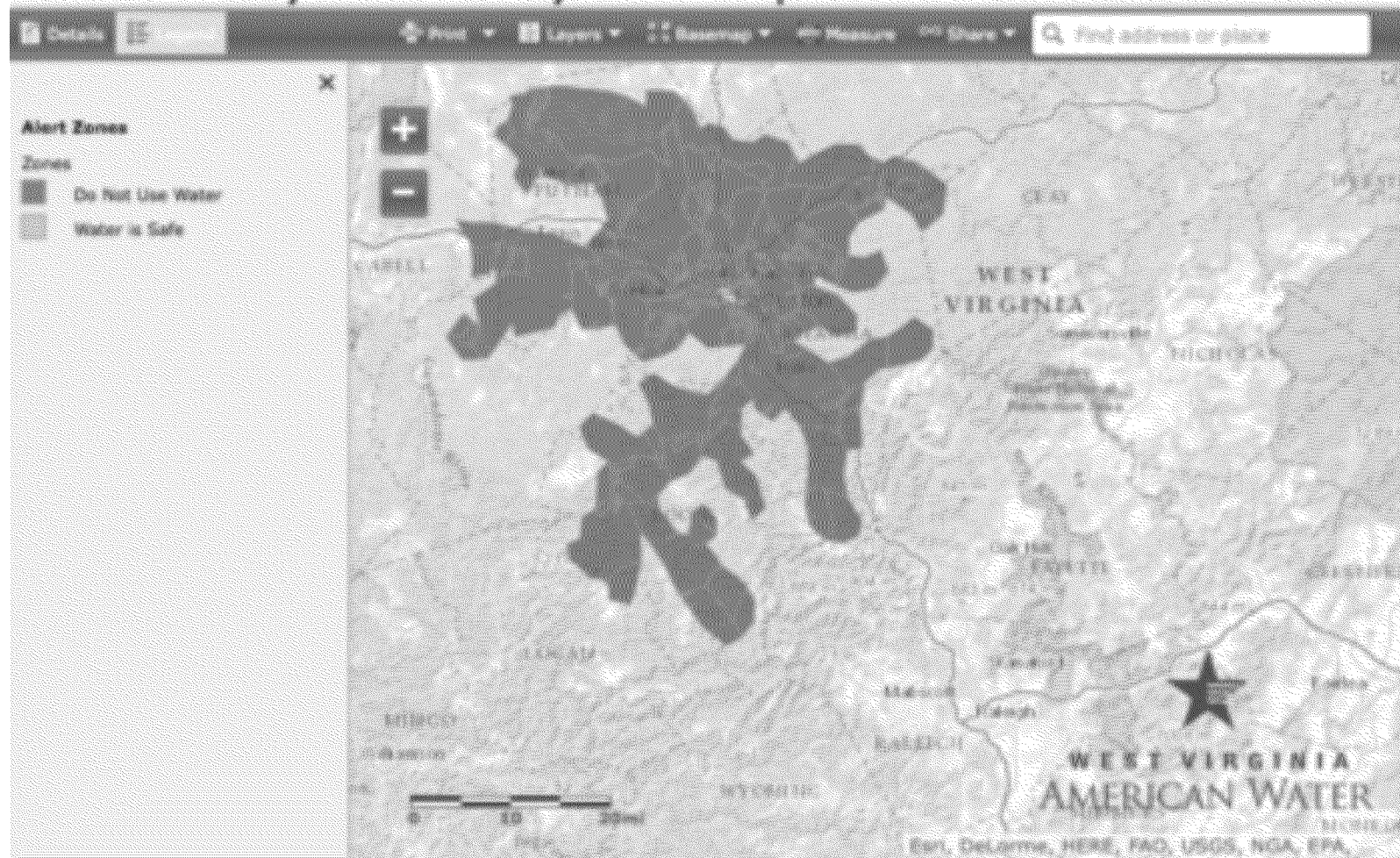
The yellow brick seen in this picture is just one layer of fill used.

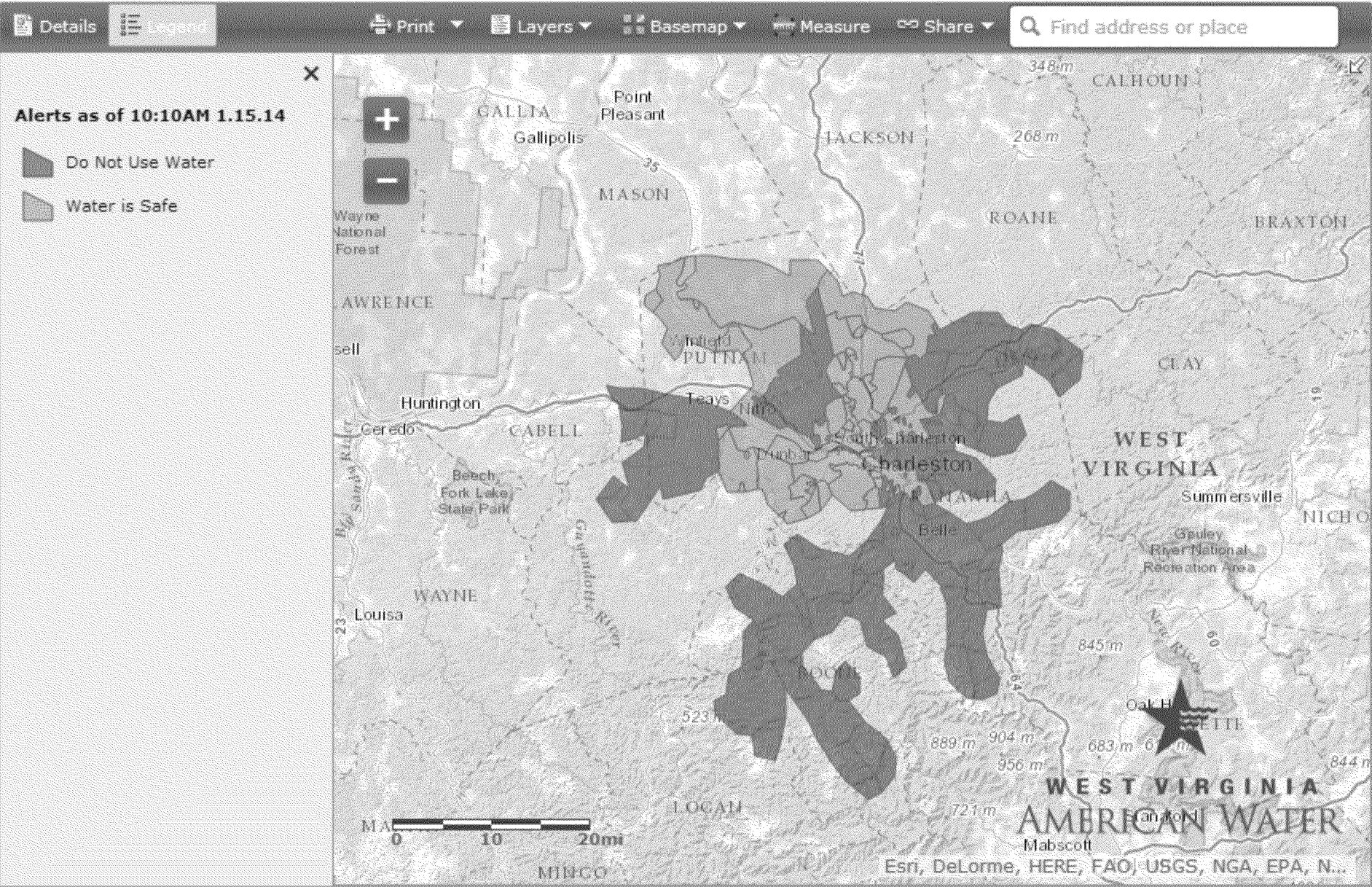
- There is a layer of red brick from demolished buildings
 - Some tile from buildings are used
 - The secondary containment does have a clay liner below the fill and gravel layers
-
- Freedom Industries will be drilling two holes to look at what the layers of fill are specifically and the depth of each, once the issue with marking gas lines is resolved.

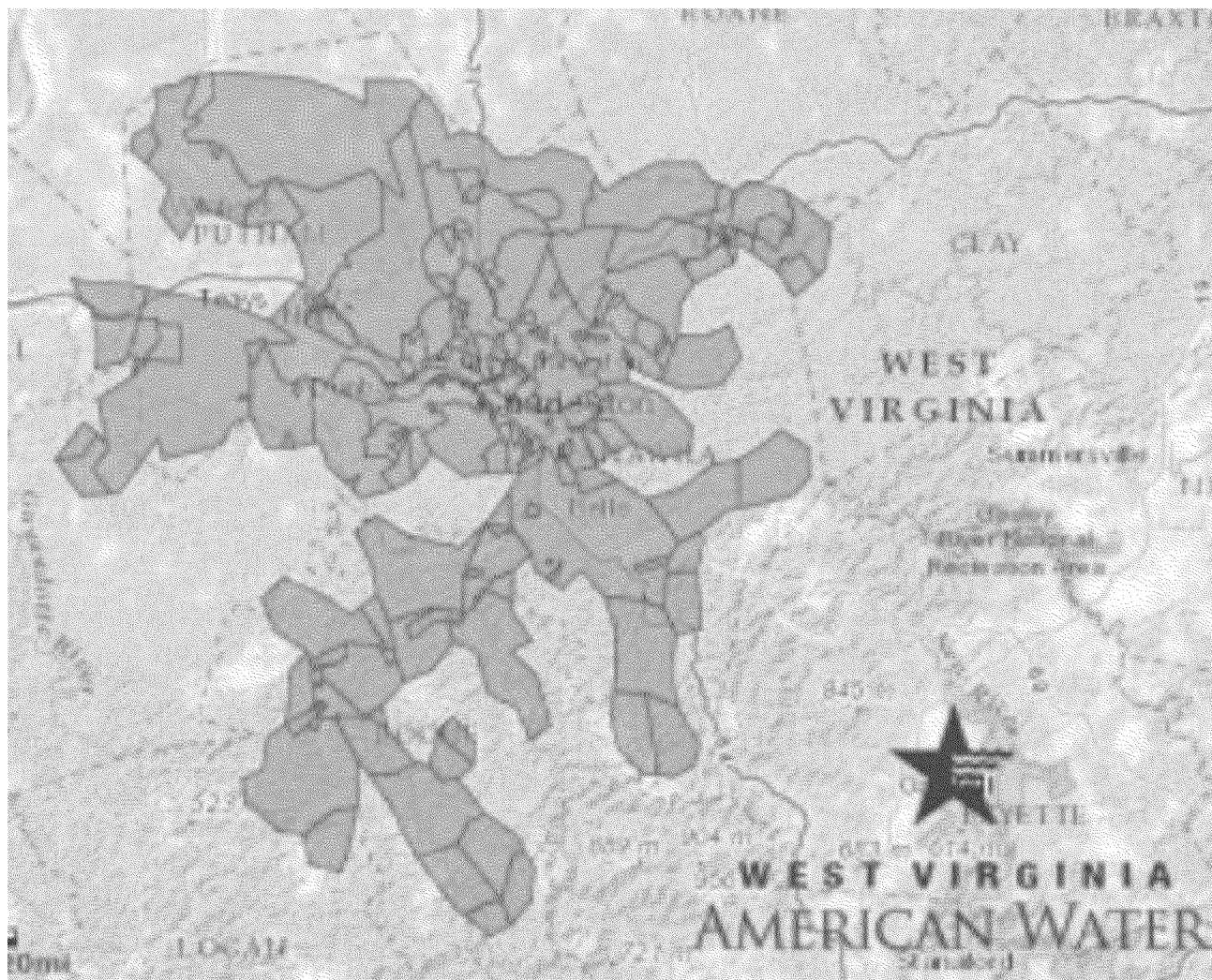




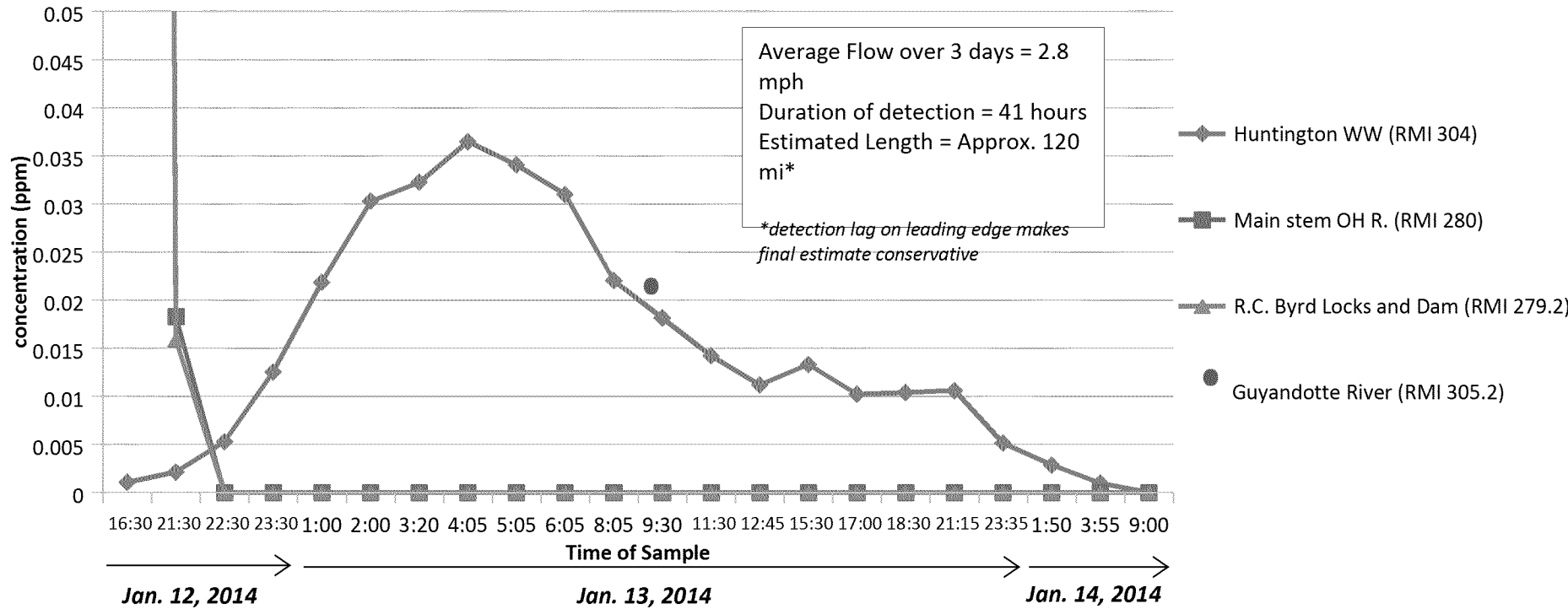
Kanawha Valley Water Safety Status Map







4-methylcyclohexane methanol Concentrations on Ohio River







VDH VIRGINIA
DEPARTMENT
OF HEALTH
Protecting You and Your Environment



